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INVENTORY OF RARE OR ENDANGERED NON-VASCULAR PLANTS AND 1/1

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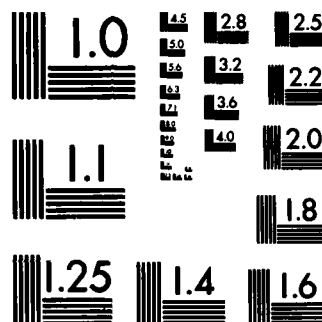
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INVENTORY OF RARE OR ENDANGERED  
NON-VASCULAR PLANTS AND FERNS OCCURRING  
IN THE FLOODPLAIN OF THE MISSISSIPPI  
RIVER BETWEEN CAIRO, ILLINOIS, AND  
ST. PAUL, MINNESOTA, AND IN THE FLOODPLAIN  
OF THE ILLINOIS RIVER BETWEEN GRAFTON,  
ILLINOIS, AND CHICAGO

By

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February 3, 1975

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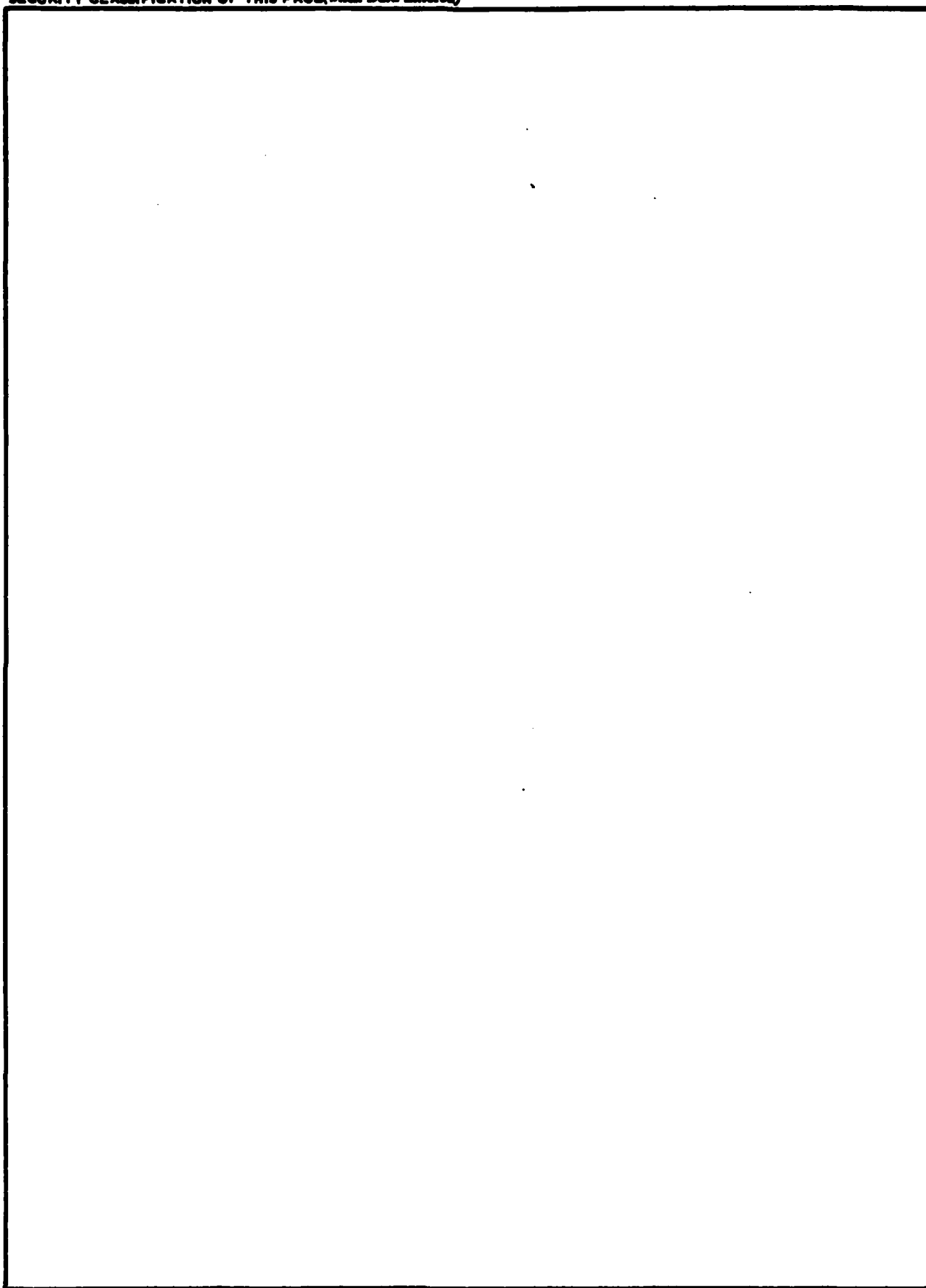
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The primary objective of this study was to determine which species of non-vascular plants and ferns which occur in the Illinois and Mississippi River floodplains are rare or endangered. Other objectives were to list the habitats in which these species occur, in what medium or on what substrate, and the possible impacts on these plants by increased barge traffic.		

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## Introduction

The St. Louis District, United States Army Corps of Engineers, is developing a list of rare and endangered species of non-vascular plants and ferns which are known to occur in the floodplain of the Mississippi River between Cairo, Illinois, and St. Paul, Minnesota, and in the floodplain of the Illinois River between Grafton, Illinois, and Chicago. A survey of the available literature, a study of herbarium specimens, and the investigator's own personal observations in the field for twenty-five years, have provided the foundation for this study.

The primary objective was to determine which species of non-vascular plants and ferns which occur in the Illinois and Mississippi River floodplains are rare or endangered. Other objectives were to list the habitats in which these species occur, in what medium or on what substrate, and the possible impacts on these plants by increased barge traffic.

Since non-vascular plants have never been studied with the intent to produce a list of officially rare or endangered species, there is no legal status for any alga, hornwort, liverwort, moss, or lichen in the study area. Missouri (1974) lists some mosses which are designated rare or endangered, but none is situated in the floodplains.

Ferns are considered in the lists of rare or endangered species by both Missouri (1974) and Illinois (1974), but only two species in either list occur in the floodplains.

The investigator has determined the relative abundance of each species of non-vascular plant and fern known to occur in the floodplains of the study area. This determination has been made on the abundance of collections and the investigator's observations. Rare

indicates that a species is known only from one or two collections. Occasional refers to species collected from three to eight times. Common is used for species collected nine or more times in the study area.

The floodplain was considered to be the area from bluff to bluff on either side of the Mississippi and Illinois Rivers. It included both protected and unprotected habitats. Seventy-one counties in five states comprised the study area.

Since the total number of species of non-vascular plants and ferns known from the floodplain is not great, the entire list is presented in this report. Certainly additional field work in the floodplains will add substantially to our present knowledge.

Following the enumeration of species, a brief discussion ensues concerning the possible impact of increased barge traffic as a result of the construction of L & D 26 (Replacement).

A bibliography covering non-vascular plants and ferns in the study area is appended.

### Algae

Any moist area in the floodplains of the Mississippi and Illinois Rivers, including the rivers themselves, provides a habitat for algae.

The rivers apparently have a relatively limited number of species, although only a few studies have been made on the major rivers (Galtsoff, 1924; Kofoed, 1903, 1908). Streams and creeks tributary to the Mississippi and Illinois Rivers have an algal flora similar to the large rivers.

Lakes, oxbow lakes, ponds, and sinkholes which are found in the floodplain have a remarkable diverse algal flora, particularly of desmids and diatoms (Wunderlin, 1968; Weik and Mohlenbrock, 1963).



Two hundred sixty-eight species of algae have been collected in the area covered by this study, but no single attempt has been made specifically to ascertain the species of algae which occur in the floodplains of the Mississippi and Illinois Rivers.

There are no species of algae in the five-state study area which have been considered rare or endangered, although obviously some species should probably fall into this category.

Because no definitive study has been made of algal distribution in the floodplains, it is impossible to ascertain whether a species known from a single locality is actually more widespread or if it does have a restricted distribution.

#### Mosses

Most of the mosses enumerated in this study occur in low, floodplain woods or in swamps where they grow on moist soil, on rotting logs, or on the trunks of living trees. Some mosses occur in fallow fields in the floodplains. Still others occur on clayey or alluvial banks along the major rivers and their tributaries.

Eighty-nine species of mosses have been collected in the floodplains of the study area, but no single specific study has ever been made to determine the moss flora of the floodplains.

Of the five states considered in this study, only Missouri (1974) has attempted to designate rare or endangered species of mosses, and none of the mosses listed as rare or endangered for Missouri occurs in the floodplain of the Mississippi River.

### Liverworts and Hornworts

Thirty-one species of liverworts and five species of hornworts have been collected from the floodplains of the Mississippi and Illinois Rivers. Many of these occur on decayed or rotting logs in low, floodplain woods or in swamps. Some are found on moist banks along the major rivers and their tributaries. A few, such as species of Riccia, are found in mud flats at the edge of the rivers. Rarely do the liverworts occur in open, fallow fields, although Sphaerocarpus texanus is an exception.

Few species of liverworts or hornworts have ever been designated as rare or endangered, although Missouri (1974) lists several, none of which occurs in the study area. There is a definite need for an intensive survey of the liverworts and hornworts in the floodplains of the study area.

### Lichens

Lichens are probably the most poorly known group of non-vascular plants (other than fungi) in the five-state study area. Because of the difficulty of identification, few lichen authorities exist, and even fewer have been concerned with either the Mississippi or the Illinois River floodplains. Skorepa (1965) has studied the lichens of the Pine Hills area of Union County, Illinois, a portion of which lies in the floodplain of the Mississippi River.

There has been no attempt previously to determine the relative abundance of the lichens in the study area, and the comment by the investigator in this study is admittedly based on rather meagre collections.

### Ferns

Most ferns occur in mesophytic forests or on cliffs. Only nine species of ferns or fern allies are found in the floodplains of the Illinois and Mississippi Rivers. Ophioglossum vulgatum is considered both rare and endangered in Illinois (1974) and rare in Missouri (1974), and Equisetum variegatum is listed as rare and endangered in Illinois (1974).

## Algae of the Mississippi River and Illinois River Floodplains

The following list of algae is based on published records and private collections made by the investigator and some of his students. For each species there is given a statement of distribution indicating whether it is in the Illinois River floodplain and/or the Mississippi River floodplain. If it occurs only in those floodplains and nowhere else in the study area, this fact is indicated. If it occurs in other areas as well as in the floodplains, the term "and elsewhere" is used. A statement of habitat is given for each species, as well as an indication of abundance, based on the investigator's personal observation.

Nomenclature essentially follows Prescott (1962).

### Division Chlorophyta

#### Family Polyblepharidaceae

*Chloraster gyrans* Ehr.  
Along Illinois River (only Mason Co.).  
Rivers.  
Rare.

#### Family Chlamydomonadaceae

*Carteria multifilis* (Fresen.) Dill.  
Along Illinois River and elsewhere.  
Rivers; ponds.  
Occasional.

*Carteria globosa* Korshikov  
Mississippi River floodplain (only Union Co.).  
Swamps.  
Rare.

#### Family Phacotaceae

*Phacotus lenticularis* (Ehr.) Stein  
Mississippi River floodplain and elsewhere.  
Ponds; swamps.  
Rare.

## Family Volvocaceae

*Eudorina elegans* Ehr.

Along Mississippi and Illinois Rivers and elsewhere.

Rivers; ponds; lakes; oxbow lakes; swamps; sloughs; streams.

Common.

*Gonium pectorale* Muell.

Along Illinois River, in Mississippi River floodplain, and elsewhere.

Rivers; streams; ponds.

Occasional.

*Pandorina morum* (Muell.) Bory

Along Illinois River, in Mississippi River floodplain, and elsewhere.

Rivers; ponds; sinkholes; swamps; streams.

Common.

*Platydorina caudata* Kofoid

Along Mississippi and Illinois Rivers and elsewhere.

Rivers; streams; lakes; ponds.

Common.

*Pleodorina californica* Shaw

Along Illinois River and elsewhere.

Rivers; streams; lakes; ponds; sinkholes.

Common.

*Pleodorina illinoisensis* Kofoid

Along Illinois and Mississippi Rivers and elsewhere.

Rivers; streams; lakes; ponds; sinkholes.

Common.

*Volvox aureus* Ehr.

Along Illinois River and elsewhere.

Rivers; ponds; sloughs;

Occasional.

*Volvox globator* L.

Along Illinois River and elsewhere.

Rivers; streams; lakes; ponds; sinkholes.

Common.

*Volvox spermatosphaera* Powers.

Along Mississippi River (several counties), but not elsewhere.

Rivers.

Rare.

## Family Palmellaceae

*Gloeocystis gigas* (Kuetz.) Lag.

Along Illinois River and elsewhere.

Rivers; ponds.

Occasional.

## Family Ulotrichaceae

*Stichococcus subtilis* (Kuetz.) Klercker  
Along Illinois River and elsewhere. .  
Mud flats; pools; ponds; ditches; streams; swamps.  
Common.

*Ulothrix aequalis* Kuetz.  
Along Mississippi River and elsewhere.  
Swamps.  
Common.

*Uronema elongatum* Hodgetts  
Along Mississippi River and elsewhere.  
Sloughs; swamps.  
Common.

## Family Microsporaceae

*Microspora amoena* (Kuetz.) Rab.  
Along Mississippi River and elsewhere.  
Sloughs; swamps; pools.  
Occasional.

## Family Chaetophoraceae

*Stigeoclonium lubricum* (Dillw.) Kuetz.  
Along Illinois River (only).  
Rivers.  
Occasional.

*Stigeoclonium tenue* (Ag.) Kuetz.  
Along Illinois River and elsewhere.  
Rivers; streams; ditches.  
Common.

## Family Cladophoraceae

*Cladophora crispata* (Roth) Kuetz.  
Along Illinois River and elsewhere.  
Rivers; streams; ponds.  
Common.

*Cladophora glomerata* (L.) Kuetz.  
Along Illinois River and elsewhere.  
Rivers; streams; ponds; pools; ditches.  
Common.

## Family Chlorococcaceae

*Golenkinia radiata* (Chod.) Wille  
 Along Illinois River and elsewhere.  
 Rivers; ponds.  
 Occasional.

## Family Hydrodictyaceae

*Pediastrum boryanum* (Turp.) Menegh.  
 Along Mississippi and Illinois Rivers.  
 Rivers; streams; lakes; ponds; swamps.  
 Common.

*Pediastrum duplex* Meyen  
 Along Mississippi and Illinois Rivers and elsewhere.  
 Rivers; streams; lakes; ponds; pools; swamps.  
 Very common.

*Pediastrum duplex* Meyen var. *clathratum* (A. Braun) Lag.  
 Mississippi River floodplain and elsewhere.  
 Ditches; ponds; clay pits.  
 Occasional.

*Pediastrum simplex* (Meyen) Lemm.  
 Along Mississippi River and elsewhere.  
 Rivers; streams; lakes; ponds; pools.  
 Common.

*Pediastrum tetras* (Ehr.) Ralfs  
 Mississippi River floodplain and elsewhere.  
 Swamps; ponds; clay pits.  
 Common.

*Pediastrum tetras* (Ehr.) Ralfs var. *tetraodon* (Corda) Rabenh.  
 Mississippi River floodplain and elsewhere.  
 Swamps; ponds.  
 Occasional.

*Sorastrum americanum* (Bohlin) Schmidle  
 Mississippi River floodplain and elsewhere.  
 Swamps; clay pits.  
 Rare.

*Sorastrum spinulosum* Naeg.  
 Mississippi River floodplain and elsewhere.  
 Swamps.  
 Occasional.

## Family Coelastraceae

*Coelastrum cambricum* Archer  
 Along Illinois and Mississippi Rivers and elsewhere.  
 Rivers; lakes; ponds.  
 Common.

*Coelastrum microporum* Naeg.  
 Mississippi River floodplain and elsewhere.  
 Swamps; ponds; clay pits.  
 Common.

## Family Botryococcaceae

*Botryococcus braunii* Kuetz.  
 Along Illinois River and elsewhere.  
 Rivers; ponds.  
 Occasional.

## Family Oocystaceae

*Ankistrodesmus falcatus* (Corda) Ralfs  
 Along Illinois River, in Mississippi River floodplain, and elsewhere.  
 Rivers; streams; lakes; ponds; sinkholes; swamps.  
 Common.

*Ankistrodesmus falcatus* (Corda) Ralfs var. *acicularis* (A. Braun)  
 G. S. West  
 Mississippi River floodplain and elsewhere.  
 Swamps; ponds.  
 Occasional.

*Closteriopsis longissima* Lemm.  
 Along Illinois River and elsewhere.  
 Rivers; ponds.  
 Occasional.

*Kirchneriella lunaris* (Kirchner) Moeb.  
 Mississippi River floodplain and elsewhere.  
 Ponds; swamps.  
 Occasional.

*Dactylococcus infusionum* Naeg.  
 Along Illinois River (only Mason Co.).  
 Rivers.  
 Rare.

*Oocystis elliptica* W. West  
 Along Mississippi River and elsewhere.  
 Swamps; ditches; ponds.  
 Occasional.



*Oocystis naegelii* A. Br.  
 Along Illinois River (only Mason Co.).  
 Rivers.  
 Rare.

*Oocystis solitaria* Wittr.  
 Along Illinois River and elsewhere.  
 Rivers; lakes; ponds.  
 Common.

*Schroederia setigera* (Schroed.) Lemm.  
 Along Illinois River and elsewhere.  
 Rivers.  
 Occasional.

*Selenastrum bibraianum* Reinsch.  
 Along Illinois River and elsewhere.  
 Rivers.  
 Occasional.

*Selenastrum gracile* Reinsch  
 Mississippi River floodplain and elsewhere.  
 Swamps; ponds.  
 Occasional.

*Tetraedron bifurcatum* (Wille) Lag.  
 Along Illinois River and elsewhere.  
 Rivers; ponds.  
 Occasional.

*Tetraedron cruciatum* (Wallich) West & West var. *reductum* Prescott  
 Mississippi River floodplain.  
 Swamps.  
 Rare.

*Tetraedron gracile* (Reinsch) Hansg.  
 Along Illinois River and elsewhere.  
 Rivers; sinkholes.  
 Occasional.

*Tetraedron regulare* Kuetz.  
 Mississippi River floodplain and elsewhere.  
 Swamps; ponds.  
 Occasional.

*Trochiscia reticularis* (Reinsch) Hansg.  
 Mississippi River floodplain and elsewhere.  
 Swamps; ponds; clay pits.  
 Occasional.

*Tetraedron trigonum* (Naeg.) Hansg.  
 Along Illinois River and elsewhere.  
 Rivers; sinkholes.  
 Occasional.

*Tetraedron trigonum* (Naeg.) Hansg. var. *minus* Reinsch.  
 Along Illinois River (only Mason Co.).  
 Rivers.  
 Rare.

*Tetraedron trigonum* (Naeg.) Hansg. var. *tetragonum* (Naeg.) Rab.  
 Along Illinois River (only Mason Co.).  
 Rivers.  
 Rare.

#### Family Scenedesmaceae

*Actinastrum hantzschii* Lag.  
 Along Mississippi River and elsewhere.  
 Rivers; lakes.  
 Occasional.

*Crucigenia lauterbornii* Schmid.  
 Along Illinois and Mississippi Rivers and elsewhere.  
 Rivers.  
 Rare.

*Crucigenia rectangularis* (A. Braun) Gay  
 Along Illinois River and elsewhere.  
 Rivers; ponds.  
 Occasional.

*Crucigenia tetrapedia* (Kirch.) West & West  
 Along Illinois River (only Mason Co.).  
 Rivers.  
 Rare.

*Micractinium pusillum* Fresen.  
 Along Illinois River and elsewhere.  
 Rivers; streams; lakes.  
 Common.

*Scenedesmus abundans* (Kirchner) Chodat  
 Mississippi River floodplain and elsewhere.  
 Swamps; ponds.  
 Occasional.

*Scenedesmus acuminatus* (Lag.) Chod.  
 Along Mississippi River and elsewhere.  
 Rivers; swamps; ponds; lakes.  
 Common.

*Scenedesmus acutiformis* Schroeder  
Mississippi River floodplain and elsewhere.  
Swamps; ponds.  
Occasional.

*Scenedesmus bijuga* (Turpin) Lag.  
Along Illinois River, in Mississippi River floodplain, and elsewhere.  
Rivers; ponds; sinkholes; swamps.  
Common.

*Scenedesmus bijuga* (Turpin) Lag. var. *alternans* (Reinsch) Hansg.  
Mississippi River floodplain and elsewhere.  
Swamps; ponds.  
Occasional.

*Scenedesmus denticulatus* Lag.  
Along Illinois River (only Mason Co.).  
Rivers.  
Rare.

*Scenedesmus longus* Mey. var. *minutus* G. M. Smith  
Along Mississippi River (only).  
Rivers.  
Occasional.

*Scenedesmus obliquus* (Turp.) Kuetz.  
Along Illinois River and elsewhere.  
Rivers; swamps; ponds; streams.  
Common.

*Scenedesmus quadricauda* (Turp.) Breb.  
Along Mississippi and Illinois Rivers and elsewhere.  
Rivers; streams; sloughs; ponds; lakes; swamps.  
Common.

*Tetrastrum elegans* Playfair  
Mississippi River floodplain.  
Ditches.  
Rare.

#### Family Zygnemataceae

*Spirogyra triplicata* (Coll.) Trans.  
Along Illinois River and elsewhere.  
Rivers; streams; ponds.  
Occasional.

#### Family Mesotaeniaceae

*Gonatozygon brebissonii* DeBary  
Along Illinois River and elsewhere.  
Rivers; ponds.  
Occasional.

## Family Desmidiaceae

*Closterium acerosum* (Schr.) Ehr.  
 Along Mississippi and Illinois Rivers and elsewhere.  
 Rivers; ponds; lakes; oxbow lakes; streams; sinkholes.  
 Common.

*Closterium acutum* (Lyngbye) Breb.  
 Mississippi River floodplain and elsewhere.  
 Swamps; ponds.  
 Common.

*Closterium acutum* (Lyngbye) Breb. var. *linea* (Perty) West & West  
 Mississippi River floodplain (only Union Co.).  
 Ditches; pond.  
 Rare.

*Closterium acutum* (Lyngbye) Breb. var. *variabile* (Lemm.) Krieger  
 Mississippi River floodplain (only Union Co.).  
 Ponds; ditches.  
 Rare.

*Closterium ehrenbergii* Meneghini  
 Mississippi River floodplain and elsewhere.  
 Swamps; ponds; clay pits.  
 Common.

*Closterium gracile* Breb.  
 Along the Illinois River, in Mississippi River floodplain, and elsewhere.  
 Rivers; ponds; lakes.  
 Common.

*Closterium incurvum* Breb.  
 Mississippi River floodplain (only Union Co.).  
 Swamps; ponds.  
 Rare.

*Closterium juncidum* Ralfs  
 Mississippi River floodplain and elsewhere.  
 Swamps; bogs; pools.  
 Occasional.

*Closterium kuetzingii* Breb.  
 Mississippi River floodplain and elsewhere.  
 Swamps; ponds.  
 Common.

*Closterium libellula* Forke  
 Mississippi River floodplain (only Union Co.).  
 Swamps; ponds.  
 Rare.

*Closterium lineatum* Ehr.  
Mississippi River floodplain and elsewhere.  
Swamps; ponds; lakes.  
Occasional.

*Closterium littorale* Gay  
Mississippi River floodplain and elsewhere.  
Swamps; ponds.  
Occasional.

*Closterium lunula* (Muell.) Nitz.  
Along the Illinois River, in Mississippi River floodplain, and elsewhere.  
Rivers; lakes; ponds; swamps.  
Common.

*Closterium parvulum* Naeg.  
Mississippi River floodplain and elsewhere.  
Swamps; ponds.  
Occasional.

*Closterium praelongum* Breb.  
Mississippi River floodplain (only Union Co.).  
Swamps; ponds.  
Occasional.

*Closterium praelongum* Breb. f. *brevior* West  
Mississippi River floodplain (only Union Co.).  
Swamps.  
Rare.

*Closterium pronum* Breb.  
Mississippi River floodplain (only Union Co.).  
Swamps; ponds.  
Rare.

*Closterium rostratum* Ehr.  
Mississippi River floodplain and elsewhere.  
Swamps; ponds.  
Occasional.

*Closterium setaceum* Ehr.  
Mississippi River floodplain (only Union Co.).  
Swamps.  
Rare.

*Closterium venus* Kuetz.  
Mississippi River floodplain and elsewhere.  
Swamps; ponds; streams.  
Common.

*Pleurotaenium trabecula* (Ehr.) Naeg.  
Mississippi River floodplain and elsewhere.  
Swamps; rivers; lakes; streams; ponds; pools.  
Common.

*Euastrum verrucosum* Ehr. var. *alatum* Wolle  
Mississippi River floodplain and elsewhere.  
Swamps; ponds.  
Common.

*Micrasterias americana* (Ehr.) Ralfs  
Mississippi River floodplain and elsewhere.  
Swamps; ponds; clay pits.  
Common.

*Micrasterias mahabuleshwarensis* Hobson  
Mississippi River floodplain and elsewhere.  
Swamps; ponds.  
Occasional.

*Micrasterias radiata* Hassall  
Mississippi River floodplain and elsewhere.  
Swamps; ponds; clay pits.  
Common.

*Micrasterias sol* (Ehr.) Kuetz.  
Mississippi River floodplain and elsewhere.  
Swamps; ponds.  
Occasional.

*Micrasterias truncata* (Corda) Breb. var. *pusilla* G. S. West  
Mississippi River floodplain (only Union Co.).  
Swamps.  
Rare.

*Cosmarium bipunctatum* Boergesen  
Mississippi River floodplain (only Union Co.).  
Swamps; ponds.  
Occasional.

*Cosmarium biretum* Breb.  
Mississippi River floodplain and elsewhere.  
Swamps; ponds.  
Common.

*Cosmarium circulare* Reinsch  
Mississippi River floodplain and elsewhere.  
Swamps; ponds; clay pits.  
Common.

*Cosmarium constrictum* Delp.  
 Along the Illinois River and elsewhere.  
 Rivers; lakes; ponds.  
 Occasional.

*Cosmarium contractum* Kirchner var. *ellipsoideum* (Elfving) West &  
 West  
 Mississippi River floodplain (only Union Co.).  
 Swamps.  
 Rare.

*Cosmarium galeritum* Nordstedt  
 Mississippi River floodplain and elsewhere.  
 Swamps; ponds; creeks.  
 Common.

*Cosmarium impressulum* Elfving  
 Mississippi River floodplain and elsewhere.  
 Swamps; ponds; creeks.  
 Occasional.

*Cosmarium lepidum* West  
 Mississippi River floodplain (only Union Co.).  
 Swamps.  
 Rare.

*Cosmarium portianum* Archer  
 Mississippi River floodplain and elsewhere.  
 Swamps; ponds; clay pits.  
 Common.

*Cosmarium pseudocornutum* Nordstedt  
 Mississippi River floodplain (only Union Co.).  
 Swamps; ponds.  
 Rare.

*Cosmarium quadratum* Ralfs  
 Mississippi River floodplain (only Union Co.).  
 Swamps.  
 Rare.

*Cosmarium sexangulare* Lundell f. *minima* Nordstedt  
 Mississippi River floodplain and elsewhere.  
 Swamps.  
 Occasional.

*Cosmarium subprotumidum* Nordstedt  
 Mississippi River floodplain and elsewhere.  
 Swamps; ponds; lakes.  
 Occasional.

*Cosmarium tinctum* Ralfs  
Mississippi River floodplain (only Union Co.).  
Swamps.  
Rare.

*Cosmarium turpinii* Breb.  
Mississippi River floodplain and elsewhere.  
Swamps; ponds.  
Common.

*Xanthidium antilopaeum* (Breb.) Kuetz. var. *polymazum* Nordstedt  
Mississippi River floodplain and elsewhere.  
Swamps; ponds.  
Occasional.

*Staurodesmus convergens* (Ehr.) Teiling  
Mississippi River floodplain and elsewhere.  
Swamps; clay pits.  
Occasional.

*Staurodesmus cuspidatus* (Breb.) Teiling  
Mississippi River floodplain and elsewhere.  
Swamps; clay pits; ponds.  
Occasional.

*Cosmocladium saxonicum* DeBary  
Along the Illinois River (only Mason Co.).  
Rivers.  
Rare.

*Staurastrum furcigerum* Breb.  
Mississippi River floodplain (only Union Co.).  
Swamps.  
Rare.

*Staurastrum gracile* Ralfs  
Along the Mississippi and Illinois River and elsewhere.  
Rivers; streams; lakes; ponds.  
Common.

*Staurastrum hexacerum* (Ehr.) Wittrock  
Mississippi River floodplain and elsewhere.  
Swamps; ponds.  
Occasional.

*Staurastrum tetracerum* Ralfs  
Mississippi River floodplain and elsewhere.  
Swamps; ponds.  
Common.



*Hyalotheca mucosa* (Mertens) Ehr.  
Mississippi River floodplain and elsewhere.  
Swamps; ponds; sloughs.  
Common.

*Desmidium aptogonum* Breb.  
Mississippi River floodplain and elsewhere.  
Swamps; ponds.  
Occasional.

*Desmidium baileyi* (Ralfs) Nordstedt  
Mississippi River floodplain and elsewhere.  
Swamps; ponds.  
Occasional.

*Desmidium swartzii* C. A. Agardh  
Mississippi River floodplain and elsewhere.  
Swamps; ponds; sloughs; clay pits.  
Common.

#### Division Euglenophyta

##### Family Euglenaceae

*Euglena acus* Ehr.  
Along the Mississippi and Illinois Rivers and elsewhere.  
Rivers; streams; ponds; lakes; sinkholes.  
Common.

*Euglena agilis* Carter  
Mississippi River floodplain (only Union Co.).  
Ditches.  
Rare.

*Euglena deses* Ehr.  
Along the Illinois River and elsewhere.  
Rivers; streams; ponds.  
Common.

*Euglena elatica* Prescott  
Mississippi River floodplain (only Union Co.).  
Ditches; ponds.  
Rare.

*Euglena elongata* Schew.  
Along the Illinois River (only Mason Co.).  
Rivers.  
Rare.

*Euglena gracilis* Klebs  
 Along the Illinois River and elsewhere.  
 Rivers; ponds; ditches; pools.  
 Common.

*Euglena hemichromata* Skuja  
 Mississippi River floodplain and elsewhere.  
 Ponds; swamps; lakes.  
 Occasional.

*Euglena minuta* Prescott  
 Mississippi River floodplain (only Union Co.).  
 Ditches.  
 Rare.

*Euglena oxyuris* Schmarida  
 Along the Illinois and Mississippi Rivers and elsewhere.  
 Rivers; sloughs; swamps; sinkholes.  
 Common.

*Euglena proxima* Dangeard  
 Mississippi River floodplain and elsewhere.  
 Ditches; ponds.  
 Occasional.

*Euglena sanguinea* Ehr.  
 Along the Illinois River and elsewhere.  
 Rivers; ponds; pools; sinkholes.  
 Common.

*Euglena spirogyra* Ehr.  
 Along the Mississippi and Illinois Rivers and elsewhere.  
 Rivers; streams; ponds; lakes; sinkholes; swamps.  
 Common.

*Euglena viridis* Ehr.  
 Along the Mississippi and Illinois Rivers and elsewhere.  
 Rivers; streams; lakes; ponds; pools; sloughs; sinkholes.  
 Common.

...  
*Lepocinclis ovum* (Ehr.) Lemm.  
 Along the Illinois River and elsewhere.  
 Rivers; ponds.  
 Occasional.

*Phacus acuminatus* Stokes  
 Mississippi River floodplain and elsewhere.  
 Swamps; ponds; lakes; clay pits.  
 Common.

*Phacus atraktoides* Pochmann  
Mississippi River floodplain (only Union Co.).  
Lakes.  
Rare.

*Phacus bacillifer* Da Cunha  
Mississippi River floodplain (only Union Co.).  
Swamps.  
Rare.

*Phacus caudatus* Huebner  
Mississippi River floodplain and elsewhere.  
Lakes; ponds; creeks; rivers; borrow pits.  
Common.

*Phacus caudatus* Huebner var. *minor* Drez.  
Mississippi River floodplain and elsewhere.  
Lakes; sloughs.  
Occasional.

*Phacus circulatus* Pochmann  
Along Mississippi River and elsewhere.  
Swamps; ponds; gravel pits.  
Occasional.

*Phacus concinnus* Weik  
Mississippi River floodplain (only Union Co.).  
Lakes.  
Rare.

*Phacus curvicaudus* Swirenko  
Mississippi River floodplain and elsewhere.  
Swamps; ponds; creeks; rivers; sinkholes; borrow pits.  
Common.

*Phacus denisii* Allorge & Lefevre  
Along Mississippi River and elsewhere.  
Ponds; lakes; creeks.  
Occasional.

*Phacus globosus* Pochmann  
Along Illinois River (only LaSalle Co.).  
Rivers.  
Rare.

*Phacus helikoides* Pochmann  
Along Mississippi River (only Carroll Co.).  
Ponds.  
Rare.

*Phacus inflexus* (Kisselew) Pochmann  
Mississippi River floodplain (only Union Co.).  
Lakes.  
Rare.

*Phacus inornatus* Weik  
Mississippi River floodplain (only Union Co.).  
Swamps.  
Rare (only known locality for this species).

*Phacus lismorensis* Playfair  
Mississippi River floodplain.  
Swamps; ditches.  
Rare.

*Phacus longicaudus* (Ehr.) Duj.  
Along Mississippi and Illinois Rivers and elsewhere.  
Rivers; streams; lakes; ponds; swamps.  
Common.

*Phacus longicaudus* (Ehr.) Duj. var. *major* Swirenko  
Mississippi River floodplain and elsewhere.  
Swamps; ponds.  
Rare.

*Phacus makrostigma* Pochmann  
In Mississippi River floodplain (only Alexander Co.).  
Ditches.  
Rare.

*Phacus minutus* (Playfair) Pochmann  
In Mississippi River floodplain (only Alexander Co.).  
Ditches.  
Rare.

*Phacus orbicularis* Huebner  
Along Mississippi River and elsewhere.  
Swamps; ponds; lakes.  
Common.

*Phacus oscillans* Klebs  
Along Mississippi River and elsewhere.  
Creeks; lakes; swamps; ditches.  
Occasional.

*Phacus ozmentii* Weik  
In Mississippi River floodplain (only Monroe Co.).  
Lakes.  
Rare (only known locality for this species).

*Phacus petelotii* Lefevre  
 Along Illinois River (only LaSalle Co.).  
 Rivers.  
 Rare.

*Phacus platalea* Drez.  
 Mississippi River floodplain and elsewhere.  
 Creeks; lakes; ponds; swamps.  
 Occasional.

*Phacus platalea* Drez. var. *major* de Pouques  
 Along Mississippi River and elsewhere.  
 Swamps; creeks; lakes; ponds.  
 Occasional.

*Phacus pleuronectes* (O. F. M.) Duj.  
 Along the Illinois and Mississippi Rivers and elsewhere.  
 Rivers; streams; lakes; ponds; sinkholes; swamps.  
 Common.

*Phacus pulchra* Roll  
 Mississippi River floodplain (only Alexander Co.).  
 Oxbow lakes.  
 Rare.

*Phacus pusillus* Lemm.  
 Along Mississippi River and elsewhere.  
 Creeks; sloughs; swamps.  
 Occasional.

*Phacus pyrum* (Ehr.) Stein  
 Mississippi River floodplain and elsewhere.  
 Swamps; bluffs; ponds; clay pits.  
 Common.

*Phacus suecicus* Lemm.  
 Mississippi River floodplain and elsewhere.  
 Swamps; lakes; ponds.  
 Occasional.

*Phacus swirenkoi* Skvortzow  
 Along Mississippi River and elsewhere.  
 Ponds; rivers; swamps.  
 Occasional.

*Phacus tortus* (Lemm.) Skvortzow  
 Mississippi River floodplain and elsewhere.  
 Swamps; ponds; ditches.  
 Common.

*Phacus trimarginatus* Allegre & Jahn  
 Along Mississippi River and elsewhere.  
 Lakes; ponds.  
 Occasional.

*Phacus triqueter* (Ehr.) Duj.  
Mississippi River floodplain and elsewhere.  
Ponds; lakes.  
Occasional.

*Trachelomonas abrupta* Swirenko var. *obesa* (Playfair) Deflandre  
Mississippi River floodplain (only Union Co.).  
Swamps.  
Rare.

*Trachelomonas charkowiensis* Swirenko  
Mississippi River floodplain and elsewhere.  
Swamps; clay pits.  
Occasional.

*Trachelomonas coronata* Swirenko  
Mississippi River floodplain and elsewhere.  
Ditches; ponds.  
Common.

*Trachelomonas cylindrica* Ehr.  
Along Mississippi River and elsewhere.  
Ditches; ponds; lakes.  
Common.

*Trachelomonas dangeardii* Skvortzow  
Mississippi River floodplain (only Union Co.).  
Ditches.  
Rare.

*Trachelomonas dubia* (Swirenko) Deflandre  
Mississippi River floodplain and elsewhere.  
Swamps; ponds.  
Rare.

*Trachelomonas dybowskii* Drez.  
Mississippi River floodplain (only Union Co.).  
Ditches.  
Rare.

*Trachelomonas fluviatilis* Lemm.  
Mississippi River floodplain (only Union Co.).  
Ditches.  
Rare.

*Trachelomonas hispida* (Perty) Stein var. *coronata* Lemm.  
Mississippi River floodplain and elsewhere.  
Ditches; swamps; ponds; lakes.  
Common.

*Trachelomonas planctonica* Swirenko  
Mississippi River floodplain (only Union Co.).  
Ditches.  
Rare.

*Trachelomonas robusta* (Swirenko) Deflandre  
Mississippi River floodplain and elsewhere.  
Swamps; ponds; lakes; clay pits.  
Common.

*Trachelomonas scabra* Playfair var. *torta* Weik & Mohlenbrock  
Mississippi River floodplain and elsewhere.  
Swamps; ponds; lakes.  
Occasional.

*Trachelomonas volvocinopsis* Swirenko  
Along Mississippi River and elsewhere.  
Ponds; lakes; swamps; clay pits.  
Common.

#### Division Chrysophyta

##### Family Mallomonadaceae

*Mallomonas acaroides* Perty  
Along Illinois River and in Mississippi River floodplain.  
Rivers; ditches.  
Rare.

##### Family Snycryptaceae

*Syncrypta volvox* Ehr.  
Along Illinois River.  
Rivers;  
Rare.

##### Family Synuraceae

*Synura uvella* Ehr.  
All along Mississippi and Illinois Rivers and elsewhere.  
Rivers; oxbow lakes; lakes; ponds; swamps.  
Common.

##### Family Ochromonadaceae

*Dinobryon bavaricum* Imhof  
Along Illinois River and elsewhere.  
Rivers; lakes.  
Occasional.

*Dinobryon cylindricum* Imhof  
 Along Illinois River and elsewhere.  
 Rivers; lakes.  
 Occasional.

*Dinobryon divergens* Imhof  
 Along Illinois River and elsewhere.  
 Rivers; lakes.  
 Common.

*Dinobryon pediforme* (Lemm.) Stein.  
 Along Illinois River.  
 Rivers.  
 Rare.

*Dinobryon sertularia* Ehr.  
 Along Illinois River and elsewhere.  
 Rivers; lakes; swamps; ponds; sinkholes.  
 Common.

*Dinobryon sertularia* Ehr. var. *protuberans* (Lemm.) Krieg.  
 Along Illinois River and elsewhere.  
 Rivers; lakes.  
 Occasional.

*Dinobryon sociale* Ehr.  
 Along Illinois River and elsewhere.  
 Rivers; lakes.  
 Common.

*Dinobryon sociale* Ehr. var. *americanum* (Brunnth.) Bachm.  
 Along Illinois River and elsewhere.  
 Rivers; lakes.  
 Occasional.

#### Family Coscinodiscaceae

*Cyclotella kuetzingiana* Thw.  
 Along Illinois River and elsewhere.  
 Rivers; lakes.  
 Common.

*Cyclotella meneghiniana* Kuetz.  
 Along Mississippi River and elsewhere.  
 Rivers; lakes.  
 Common.

*Melosira crenulata* (Ehr.) Kuetz.  
 Along Mississippi River and elsewhere.  
 Rivers; lakes.  
 Common.



*Melosira distans* (Ehr.) Kuetz.  
 Along Mississippi River (only St. Clair Co.).  
 Rivers.  
 Rare.

*Melosira granulata* (Ehr.) Ralfs  
 Along Mississippi and Illinois Rivers and elsewhere.  
 Rivers; lakes; sinkholes.  
 Very common.

*Melosira juergensii* Ag.  
 Along Mississippi River (only Hancock Co.).  
 Lakes.  
 Rare.

*Melosira varians* Ag.  
 Along Illinois River and elsewhere.  
 Rivers; ponds; creeks; ditches; sinkholes.  
 Very common.

*Stephanodiscus niagarae* Ehr.  
 Along Illinois and Mississippi Rivers and elsewhere.  
 Rivers; lakes.  
 Common.

#### Family Rhizosoleniaceae

*Rhizosolenia eriensis* H. L. Smith  
 Along Illinois River and elsewhere.  
 Rivers; lakes.  
 Common.

#### Family Tabellariaceae

*Tabellaria fenestrata* (Lyngb.) Kuetz.  
 Along Illinois River and elsewhere.  
 Rivers.  
 Very common.

*Tabellaria flocculosa* (Roth) Kuetz.  
 Along Illinois River and elsewhere.  
 Rivers; lakes.  
 Very common.

#### Family Meridionaceae

*Meridion circulare* (Grev.) Ag.  
 Along Illinois River and elsewhere.  
 Rivers; creeks; ditches.  
 Common.

## Family Diatomaceae

*Diatoma elongatum* var. *tenuis* (Ag.) V. H. Boyer  
Along Illinois River (only Mason Co.).  
Rivers.  
Rare.

*Diatoma vulgare* Bory  
Along Illinois River (only Mason Co.).  
Rivers; creeks.  
Occasional.

## Family Fragilariaceae

*Asterionella formosa* Hass.  
Along Illinois River and elsewhere.  
Rivers; lakes.  
Occasional.

*Asterionella gracillima* (Hantz.) Heib.  
Along Mississippi and Illinois Rivers and elsewhere.  
Rivers; lakes.  
Very common.

*Fragilaria capucina* Desmaz.  
Along Mississippi River and elsewhere.  
Rivers; streams; ditches.  
Common.

*Fragilaria constricta* Ehr.  
Along Mississippi River (only St. Clair Co.).  
Rivers.  
Rare.

*Fragilaria crotonensis* Kitton.  
Along Mississippi and Illinois Rivers and elsewhere.  
Rivers; lakes.  
Common.

*Fragilaria virescens* Ralfs  
Along Illinois River and elsewhere.  
Rivers; lakes.  
Common.

*Synedra acus* Kuetz.  
Along Illinois River and elsewhere.  
Rivers; streams; ponds.  
Common.

*Synedra acus* Kuetz. var. *radians* (Kuetz.) Hust.  
 Along Mississippi and Illinois Rivers and elsewhere.  
 Rivers; lakes; sinkhole ponds.  
 Very common.

*Synedra capitata* Ehr.  
 Along Illinois River and elsewhere.  
 Rivers; lakes.  
 Occasional.

*Synedra hyalina* Prov.  
 Along Illinois River (only Mason Co.).  
 Rivers.  
 Rare.

*Synedra ulna* (Nitz.) Ehr.  
 Along Illinois and Mississippi Rivers and elsewhere.  
 Rivers; lakes; sinkhole ponds; ditches.  
 Very common.

#### Family Eunotiaceae

*Eunotia flexuosa* (Breb.) Kuetz.  
 Along Illinois River (only Peoria Co.).  
 Rivers.  
 Rare.

#### Family Achmanthaceae

*Cocconeis pediculus* Ehr.  
 Along Illinois River and elsewhere.  
 Rivers; streams; lakes; ponds.  
 Common.

#### Family Naviculaceae

*Gyrosigma acuminatum* (Kuetz.) Cl.  
 Along Mississippi River and elsewhere.  
 Rivers; lakes.  
 Common.

*Gyrosigma spenceri* (Quek.) Cl.  
 Along Mississippi River and elsewhere.  
 Rivers; lakes.  
 Common.

*Navicula confervacea* (Kuetz.) Grun.  
 Along Mississippi River (only Hancock and Henderson cos.).  
 Rivers.  
 Occasional.

*Neidium amphirhyncus* (Ehr.) Pfitz.  
Along Mississippi River and elsewhere.  
Rivers; lakes.  
Occasional.

*Neidium iridis* (Ehr.) Pfitz.  
Along Illinois River and elsewhere.  
Rivers; lakes.  
Occasional.

#### Family Gomphonemataceae

*Gomphonema constrictum* Ehr.  
Along Illinois River and elsewhere.  
Rivers; creeks; ditches.  
Common.

#### Family Cymbellaceae

*Cymbella prostrata* (Berk.) Cl.  
Along Illinois River and elsewhere.  
Rivers; lakes.  
Occasional.

*Epithemia turgida* (Ehr.) Kuetz.  
Along Illinois River and elsewhere.  
Rivers; lakes.  
Occasional.

*Epithemia turgida* (Ehr.) Kuetz. var. *westermanii* (Ehr.) Grun.  
Along Mississippi River (only St. Clair Co.).  
Rivers.  
Rare.

#### Family Nitzschiaceae

*Hantzschia amphioxys* (Ehr.) Grun.  
Along Illinois River and elsewhere.  
Rivers; streams; ditches.  
Common.

*Nitzschia sigmoidea* (Nitz.) W. Smith  
Along Illinois River and elsewhere.  
Rivers; streams; lakes; ponds.  
Common.

## Family Surirellaceae

*Cymatopleura solea* (Breb.) W. Smith  
 Along Illinois River and elsewhere.  
 Rivers; streams; lakes.  
 Common.

*Surirella minuta* Breb.  
 Along Illinois River and elsewhere.  
 Rivers; streams; ditches.  
 Occasional.

*Surirella ovata* Kuetz.  
 Along Illinois River and elsewhere.  
 Rivers; streams; lakes.  
 Occasional.

*Surirella spiralis* Kuetz.  
 Along Illinois River and elsewhere.  
 Rivers; streams.  
 Occasional.

*Surirella splendida* (Ehr.) Kuetz.  
 Along Illinois River and elsewhere.  
 Rivers; streams; lakes.  
 Occasional.

## Division Pyrrophyta

## Family Chloromonadaceae

*Gonyostomum semen* (Ehr.) Diesing  
 Mississippi River floodplain (only Union Co.).  
 Swamps.  
 Rare.

## Family Gymnodiniaceae

*Gymnodinium limneticum* Lackey  
 Mississippi River floodplain and elsewhere.  
 Swamps; ponds.  
 Occasional.

## Family Phytodiniaceae

*Cystodinium cornifax* (Schilling) Klebs  
 Mississippi River floodplain (only Union Co.).  
 Swamps.  
 Rare.

## Family Peridiniaceae

*Peridinium bipes* Stein  
 Along the Illinois River and elsewhere.  
 Rivers; lakes; ponds.  
 Common.

*Peridinium cinctum* (Muell.) Ehr.  
 Along the Illinois River and elsewhere.  
 Ponds.  
 Rare.

## Family Ceratiaceae

*Ceratium cornutum* (Ehr.) Clap. & Lachm.  
 Along the Illinois River and elsewhere.  
 Rivers; ponds.  
 Occasional.

*Ceratium hirundinella* (O. F. Muell.) Duj.  
 Along the Mississippi and Illinois Rivers and elsewhere.  
 Rivers; streams; lakes; ponds; sloughs; sinkholes.  
 Common.

## Division Cyanophyta

## Family Chroococcaceae

*Anacystis rupestris* (Lyngbye) D. & D. Daily  
 Along Illinois River and elsewhere.  
 Moist, sandy depressions.  
 Occasional.

*Coelosphaerium confertum* West & West  
 Along Mississippi River and elsewhere.  
 Ditches.  
 Occasional.

*Merismopedia glauca* (Ehr.) Kuetz.  
 Along Mississippi and Illinois Rivers and elsewhere.  
 Ponds; ditches; oxbow lakes; lakes.  
 Common.

*Merismopedia trolleri* Bachmann  
 Mississippi River floodplain (only Union Co.).  
 Swamps.  
 Rare.

*Microcystis aeruginosa* Kuetz.  
 Along Mississippi and Illinois Rivers and elsewhere.  
 Lakes; ponds; swamps.  
 Common.

#### Family Oscillatoriaceae

*Arthrospira gomontiana* Setchell  
 Mississippi River floodplain (only Union Co.).  
 Lakes.  
 Rare.

*Lyngbya versicolor* (Wart.) Gom.  
 Along Illinois River.  
 Rivers.  
 Rare.

*Oscillatoria agardhii* Gom.  
 Along Mississippi and Illinois Rivers.  
 Swamps; pools; streams; ponds; ditches.  
 Common.

*Oscillatoria amoena* (Kuetz.) Gom.  
 Along Mississippi River and elsewhere.  
 Ponds.  
 Occasional.

*Oscillatoria limosa* C. A. Agardh  
 Along Illinois and Mississippi Rivers and elsewhere.  
 Ponds; creeks; swamps.  
 Common.

*Oscillatoria princeps* Vaucher  
 Mississippi River floodplain.  
 Ponds; swamps.  
 Occasional.

*Oscillatoria profunda* Kirchner  
 Mississippi River floodplain (only Union Co.).  
 Swamps.  
 Rare.

*Oscillatoria splendida* Greville  
 Along Mississippi and Illinois Rivers and elsewhere.  
 Ponds; swamps; clay pits.  
 Common.

*Oscillatoria tenuis* C. A. Agardh var. *tergestina* (Kuetz.) Rab.  
 Mississippi River floodplain and elsewhere.  
 Ponds; lakes; swamps.  
 Occasional.

*Phormidium uncinatum* (C. A. Agardh) Gom.  
Along Illinois River and elsewhere.  
Rivers.  
Occasional.

#### Family Nostocaceae

*Anabaena azollae* Strasburger  
Mississippi River floodplain.  
Swamps.  
Rare.

*Anabaena circinalis* (Kuetz.) Rab.  
Along Mississippi River and elsewhere.  
Ponds; sloughs.  
Common.

*Anabaena flos-aquae* (Lyngbye) Breb.  
Along Mississippi River and elsewhere.  
Ponds; sloughs.  
Common.

*Anabaena planctonica* Brunnth.  
Along Mississippi River and elsewhere.  
Rivers; ponds.  
Occasional.

*Anabaena spiroides* Kleb.  
Along Mississippi River and elsewhere.  
Ponds.  
Common.

*Anabaena unispora* Gardner  
Mississippi River floodplain and elsewhere.  
Lakes; springs.  
Occasional.

*Aphanizomenon flos-aquae* (L.) Ralfs  
Along Mississippi River and elsewhere.  
Ponds; rivers.  
Common.

#### Family Rivulariaceae

*Rivularia aquatica* de Wildeman  
Mississippi River floodplain (only Union Co.).  
Swamps.  
Rare.



## Mosses of the Mississippi and Illinois River Floodplains

The following list of mosses (Musci) is based, for the most part, on collections in the herbarium of Southern Illinois University, Carbondale, and in a few private herbaria. For each species in the list, there is a statement indicating its habitat and its substrate. An indication of abundance is given, based upon existing collections and the investigator's personal observation.

Nomenclature follows Crum, Steere, and Anderson (1973).

## Family Fissidentaceae

*Fissidens adiantoides* Hedw.  
Along rivers.  
Moist banks.  
Common.

*Fissidens bryoides* Hedw.  
Floodplains.  
Moist soil.  
Common.

*Fissidens cristatus* Wils.  
Low, floodplain woods.  
Bark of trees.  
Occasional.

*Fissidens fontanus* (Beauv.) Steud.  
Low woods; swamps.  
On rotting logs.  
Occasional.

*Fissidens osmundioides* Hedw.  
Floodplains.  
Moist soil.  
Occasional.

*Fissidens taxifolius* Hedw.  
Low, floodplain woods.  
Damp, shaded soil.  
Rare.

*Fissidens viridulus* (Sw.) Wahlenb.  
Swamps.  
On logs.  
Rare.

## Family Ditrichaceae

*Pleuridium acuminatum* Lindb.  
Floodplains.  
Clayey soils; ditches.  
Common.

*Pleuridium subulatum* (Hedw.) Rabenh.  
Floodplains.  
Ditches; fields; banks.  
Common.

*Pleuridium sullivantii* Aust.  
Floodplains.  
Ditches; fields.  
Occasional.

*Ceratodon purpureus* (Hedw.) Brid.  
Swamps; open areas.  
Wet soil.  
Common.

*Ditrichum pusillum* (Hedw.) Hampe  
Ditches.  
Moist soil.  
Occasional.

## Family Dicranaceae

*Bruchia sullivantii* Aust.  
Open fields in the floodplains.  
Moist soil.  
Occasional.

*Dicranella heteromalla* (Hedw.) Schimp.  
Along rivers.  
Banks.  
Occasional.

*Dicranella varia* (Hedw.) Schimp.  
Along rivers.  
Banks.  
Common.

*Dicranum flagellare* Hedw.  
Swamps; low, floodplain woods.  
On rotting logs.  
Occasional.

*Dicranum montanum* Hedw.  
Low, floodplain woods.  
On rotting logs.  
Occasional.

*Dicranum scoparium* Hedw.  
Swamps; low, floodplain woods.  
On rotting logs.  
Common.

#### Family Pottiaceae

*Weissia controversa* Hedw.  
Open fields and banks in the floodplains.  
On moist soil.  
Occasional.

*Tortella humilis* (Hedw.) Jenn.  
Flatwoods (Union Co., Ill.).  
Base of trees.  
Rare.

*Barbula unguiculata* Hedw.  
Banks and fields along the rivers.  
On moist soil.  
Occasional.

*Dematodon obtusifolius* (Schwaegr.) Schimp.  
Along Illinois River (Mason Co.).  
Sandy soil.  
Rare.

#### Family Physcomitrium

*Physcomitrium pyriforme* (Hedw.) Hampe  
Open areas in the floodplains.  
Moist soil.  
Common.

*Funaria flavicans* Michx.  
Along rivers.  
On bare soil.  
Occasional.

*Funaria hygrometrica* Hedw.  
Along rivers.  
On bare soil.  
Common.

#### Family Bryaceae

*Pohlia nutans* (Hedw.) Lindb.  
Along rivers; swamps.  
On rotting wood; on sand.  
Occasional.

*Leptobryum pyriforme* (Hedw.) Wils.  
Floodplain fields.  
On moist soil.  
Occasional.

*Bryum argenteum* Hedw.  
Along rivers.  
On moist sand.  
Occasional.

*Bryum caespiticiu*m Hedw.  
Floodplains.  
On moist soil.  
Common.

*Bryum pseudotriquetru*m (Hedw.) Gaertn., Meyer & Scherb. var. *bimum*  
(Schreb.) Lilj.  
Swamps.  
On moist soil.  
Rare.

*Rhodobryum roseu*m (Hedw.) Limpr.  
Low, floodplain woods.  
On rotting logs; on soil.  
Occasional.

#### Family Mniaceae

*Mnium cuspidatu*m Hedw.  
Floodplain fields; low, floodplain woods.  
On moist soil.  
Common.

*Mnium marginatu*m (With.) Brid.  
Floodplains.  
On moist soil.  
Occasional.

*Mnium punctatu*m Hedw.  
Swamps.  
On wet soil.  
Occasional.

*Mnium mediu*m B. S. G.  
Floodplains.  
On wet soil.  
Occasional.

*Mnium stellare* Hedw.  
Low, floodplain woods.  
On moist soil.  
Rare.

## Family Orthotrichaceae

*Orthotrichum pusillum* Mitt.  
Low, floodplain woods.  
On bark.  
Occasional.

*Drummondia prorepens* (Hedw.) Britt.  
Low, floodplain woods.  
On bark.  
Occasional.

## Family Climaciaceae

*Climacium americanum* Brid.  
Swamps.  
On wet soil.  
Occasional.

## Family Leucodontaceae

*Leucodon julaceus* (Hedw.) Sull.  
Low, floodplain woods.  
On bark.  
Occasional.

## Family Theliaceae

*Thelia hirtella* (Hedw.) Sull.  
Swamps.  
On trunks.  
Rare.

*Thelia lescurii* Sull.  
Along rivers.  
On sandy soil.  
Rare.

## Family Leskeaceae

*Leskea obscura* Hedw.  
Low, floodplain woods.  
On rotting wood.  
Occasional.

*Leskea polycarpa* Hedw.  
Low, floodplain woods.  
On rotting wood.  
Common.

#### Family Thuidiaceae

*Anomodon attenuatus* (Hedw.) Hueb.  
Low, floodplain woods.  
On rotting logs.  
Occasional.

*Anomodon rostratus* (Hedw.) Schimp.  
Low, floodplain woods.  
On bark.  
Occasional.

*Haplocladium microphyllum* (Hedw.) Broth.  
Swamps.  
On rotting wood.  
Rare.

*Haplocladium virginianum* (Brid.) Broth.  
Swamps.  
On logs.  
Rare.

*Thuidium delicatulum* (Hedw.) B. S. G.  
Low, floodplain woods.  
On moist soil; on rotting wood.  
Common.

*Thuidium recognitum* (Hedw.) Lindb.  
Swamps.  
On rotting logs.  
Occasional.

*Helodium paludosum* (Sull.) Aust.  
Swamps.  
On rotting logs.  
Rare.

#### Family Amblystegiaceae

*Campylium chrysophyllum* (Brid.) J. Lange  
Low, floodplain woods.  
On wet soil.  
Occasional.

*Campylium hispidulum* (Brid.) Mitt.  
Swamps; low, floodplain woods.  
On rotting wood.  
Occasional.

*Leptodictyum riparium* (Hedw.) Warnst.  
Along rivers.  
On banks.  
Rare.

*Hygroamblystegium tenax* (Hedw.) Jenn.  
Swamps.  
In wet soil.  
Occasional.

*Amblystegium juratzkanum* Schimp.  
Floodplains.  
On moist soil; on rotting wood.  
Common.

*Amblystegium serpens* (Hedw.) B. S. G.  
Floodplains.  
On moist soil; on rotting wood.  
Common.

*Amblystegium varium* (Hedw.) Lindb.  
Floodplains.  
On moist soil; on rotting wood.  
Common.

*Calliergon cordifolium* (Hedw.) Kindb.  
Swamps.  
On wet soil.  
Rare.

#### Family Brachytheciaceae

*Homalotheciella subcapillata* (Hedw.) Broth.  
Low, floodplain woods.  
On rotting wood.  
Occasional.

*Brachythecium acuminatum* (Hedw.) Aust.  
Low, floodplain woods.  
On logs.  
Rare.

*Brachythecium acutum* (Mitt.) Sull.  
Swamps.  
On logs.  
Rare.

*Brachythecium campestre* (C. Muell.) B. S. G.  
 Along rivers.  
 On wet soil.  
 Occasional.

*Brachythecium oxycladon* (Brid.) Jaeg. & Sauerb.  
 Floodplains.  
 On moist soil.  
 Occasional.

*Brachythecium salebrosum* (Web. & Mohr) B. S. G.  
 Low, floodplain woods.  
 On moist soil; on logs; on bark.  
 Common.

*Bryoandersonia illecebra* (Hedw.) Robins.  
 Floodplain woods and fields.  
 On moist soil.  
 Occasional.

*Rhyncostegium serrulatum* (Hedw.) Jaeg. & Sauerb.  
 Low, floodplain woods.  
 On moist soil.  
 Occasional.

*Eurhynchium hians* (Hedw.) Sande Lac.  
 Low, floodplain woods.  
 On moist soil.  
 Occasional.

*Eurhynchium pulchellum* (Hedw.) Jenn.  
 Low, floodplain woods.  
 On moist soil; on logs.  
 Common.

#### Family Entodontaceae

*Entodon challengeri* (Par.) Card.  
 Low, floodplain woods.  
 On rotting logs.  
 Occasional.

*Entodon cladorrhizans* (Hedw.) C. Muell.  
 Low, floodplain woods.  
 On logs; on moist soil.  
 Common.

*Entodon seductrix* (Hedw.) C. Muell.  
 Floodplains.  
 On moist soil.  
 Common.



*Pleurozium schreberi* (Brid.) Mitt.  
Swamps.  
On wet soil.  
Occasional.

#### Family Plagiotheciaceae

*Plagiothecium denticulatum* (Hedw.) B. S. G.  
Low, floodplain woods.  
On rotting wood.  
Occasional.

#### Family Hypnaceae

*Platygerium repens* (Brid.) B. S. G.  
Swamps.  
On rotting wood; on trunks.  
Occasional.

*Pylaisiella selwynii* (Kindb.) Crum, Steere & Anderson  
Swamps.  
On bark.  
Occasional.

*Hypnum cupressiforme* Hedw.  
Swamps.  
On rotting wood; on moist soil.  
Common.

*Hypnum imponens* Hedw.  
Swamps.  
On rotting wood.  
Occasional.

*Hypnum lindbergii* Mitt.  
Swamps.  
On rotting wood.  
Occasional.

*Isopterygium elegans* (Brid.) Lindb.  
Low, floodplain woods.  
On rotting wood.  
Occasional.

#### Family Buxbaumiaceae

*Buxbaumia aphylla* Hedw.  
Along rivers.  
Clayey banks.  
Occasional.

*Diphyscium foliosum* (Hedw.) Mohr  
Along rivers.  
Clayey banks.  
Common.

Family Tetraphidaceae

*Tetraphis pellucida* Hedw.  
Low, floodplain woods.  
On moist soil; alluvial banks.  
Common.

Family Polytrichaceae

*Atrichum angustatum* (Brid.) B. S. G.  
Floodplain woods and fields.  
Sandy soil.  
Common.

*Atrichum undulatum* (Hedw.) Beauv.  
Floodplain woods and fields.  
Clayey soil.  
Common.

*Pogonatum brachyphyllum* (Michx.) Beauv.  
Along rivers.  
Clayey banks.  
Common.

*Pogonatum pensilvanicum* (Hedw.) Beauv.  
Along rivers.  
Clayey banks.  
Common.

*Polytrichum commune* Hedw.  
Floodplain woods and fields.  
On moist soil.  
Common.

*Polystichum ohioense* Ren. & Card.  
Low, floodplain woods.  
On moist soil.  
Common.

## Liverworts and Hornworts of the Mississippi and Illinois River Floodplains

The following list of liverworts (Hepaticae) and hornworts (Anthocerotae) is based on published records and private collections made by the investigator and some of his colleagues and students. For each species there is given a statement indicating its occurrence in the Illinois River floodplain or the Mississippi River floodplain. If found in both floodplains, only the term floodplain is used. A statement of habitat is given for each species, as well as an indication of abundance, based on the investigator's personal observation.

Nomenclature essentially follows Schuster (1953).

### Family Anthocerotaceae

*Anthoceros macounii* Howe

Along Mississippi River.

Clayey, moist banks, usually below high-water level of spring floods.

Occasional.

*Anthoceros crispulus* (Mont.) Douin

Along Mississippi River.

Clayey soils on banks or in ditches.

Occasional.

*Anthoceros punctatus* L.

Along Mississippi River.

River banks.

Occasional.

*Phaeoceros laevis* (L.) Proskauer

Along Mississippi and Illinois Rivers.

Edges of rivers and lakes.

Common.

*Notothylas orbicularis* (Schwein.) Sulliv.

Along Mississippi River.

Sandy, alluvial soil.

Occasional; more common in Minnesota and Wisconsin.

## Family Jungermanniaceae

*Jamesoniella autumnalis* (DC.) Steph.  
Floodplains, and other habitats.  
On decayed logs.  
Common in the northeastern United States.

*Jungermannia lanceolata* L.  
Floodplains, and other habitats.  
On decayed logs.  
Common in much of the United States.

*Solenostoma gracillimum* (Smith) Schust.  
Floodplains.  
Sandy soil.  
Common in the eastern United States.

*Solenostoma hyalinum* (Lyell.) Mitt.  
Floodplains.  
Clayey banks.  
Common in much of the United States.

*Solenostoma fossombronioides* (Aust.) Schust.  
Floodplains.  
Banks.  
Common in northeastern United States.

## Family Plagiochilaceae

*Plagiochila asplenioides* (L.) Dumort.  
Floodplains and other habitats.  
Marly soil.  
Common.

## Family Harpanthaceae

*Geocalyx graveolans* (Schrad.) Nees  
Floodplains and other habitats.  
On decaying logs.  
Occasional.

*Harpanthus scutatus* (Web. & Mohr) Spruce  
Floodplains; cliffs.  
On decaying logs.  
Rare.

**Family Lophocoleaceae**

*Lophocolea heterophylla* (Schrad.) Dumort.  
Floodplain woods.  
Banks; on soil under trees; on decaying logs.  
Common.

*Chiloscyphus polyanthus* (L.) Corda  
Swampy woods.  
On decaying logs.  
Occasional.

**Family Scapaniaceae**

*Diplophyllum apiculatum* (Evs.) Steph.  
Lowlands.  
Clayey soil.  
Rare.

**Family Cephaloziaceae**

*Cephalozia media* Lindb.  
Floodplain woods.  
On decaying logs.  
Common.

**Family Blepharostomaceae**

*Blepharostoma trichophyllum* (L.) Dumort.  
Floodplain woods.  
Banks; cliffs; on decaying logs.  
Rare.

**Family Lepidoziaceae**

*Lepidozia reptans* (L.) Dumort.  
Floodplains along Mississippi River (only Grant Co., Wisconsin).  
Peaty soil; on decaying wood.  
Rare.

*Bazzania trilobata* (L.) Gray.  
Floodplain woods.  
On wet logs; shaded banks.  
Occasional.

**Family Frullaniaceae**

*Frullania eboracensis* Gottsche  
Lowland woods.  
On bark.  
Common.

*Frullania inflata* Gottsche  
Lowland woods.  
On bark.  
Common.

*Frullania squarrosa* (R., Bl. N.) Dumort.  
Floodplain woods.  
On bark.  
Occasional.

**Family Fossombroniaceae**

*Fossombronia cristula* Aust.  
Floodplain woods.  
Alluvial banks.  
Rare.

**Family Pelliaceae**

*Pellia epiphylla* (L.) Corda  
Swampy woods.  
Peaty soil.  
Occasional.

**Family Blasiaceae**

*Blasia pusilla* (L.) Micheli  
Along Mississippi River.  
Clayey banks; ditches.  
Occasional.

**Family Riccardiaceae**

*Riccardia pinguis* (L.) Gray  
Along Mississippi and Illinois Rivers.  
Marly soil; alluvial banks.  
Common.

**Family Ricciaceae**

*Ricciocarpus natans* (L.) Corda  
Along Mississippi River.  
Mud flats.  
Occasional.

*Riccia fluitans* L.  
Mississippi River floodplain.  
Floating in swamps.  
Common.

*Riccia sorocarpa* Bisch.  
Along Mississippi River.  
Mud flats.  
Rare.

*Riccia sullivantii* Aust.  
Mississippi River floodplain.  
Fallow fields.  
Occasional.

*Riccia arvensis* Aust.  
Along Mississippi River.  
Mud flats.  
Occasional.

*Riccia hirta* (Aust.) Underw.  
Mississippi River floodplain.  
Fallow fields.  
Occasional.

*Riccia frostii* Aust.  
Along Mississippi River.  
Mud flats.  
Rare.

*Riccia beyrichiana* Hampe  
Along Mississippi River.  
Fallow fields; mud flats.  
Occasional.

#### Family Sphaerocarpaceae

*Sphaerocarpus texanus* Aust.  
Mississippi River floodplain.  
Fallow field.  
Rare.

## Lichens of the Mississippi and Illinois River Floodplains

The following list of lichens is based on collections in the herbarium of Southern Illinois University, Carbondale. Literature concerning lichens in the floodplains of the study area is non-existent. Several additions could be made to the list if systematic collecting were undertaken. For each species in the list, there is a statement indicating its habitat and its substrate. An indication of abundance is given, based upon existing collections.

Nomenclature follows Hale (1961).

## Family Arthopyreniaceae

*Arthopyrenia biformis* (Borr.) Mass.  
Low, floodplain woods.  
On bark.  
Occasional.

## Family Buelliaceae

*Rinodina exigua* (Ach.) S. Gray  
Low, floodplain woods.  
On bark.  
Occasional.

## Family Caloplacaceae

*Blastenia pollinii* Mass.  
Floodplain flatwoods.  
On bark.  
Rare.

## Family Cladoniaceae

*Cladonia bacillaris* (Ach.) Nyl.  
Swampy woods.  
On bald cypress.  
Rare.



## Family Collemataceae

*Leptogium cyanescens* (Ach.) K rb.  
Low, floodplain woods.  
On bark.  
Occasional.

*Leptogium lichenoides* (L.) Zahlbr.  
Low, floodplain woods.  
On bark.  
Occasional.

## Family Lecanoraceae

*Lecanora chlarona* (Ach.) Nyl.  
Floodplain flatwoods.  
On bark.  
Occasional.

## Family Lecidiaceae

*Bacidia effusa* (J. B. Smith) Trev.  
Floodplain flatwoods.  
On bark.  
Occasional.

*Bacidia fuscorubella* (Hoffm.) Bausch.  
Low, floodplain woods.  
On bark.  
Common.

*Bacidia incompta* (Borr.) Anzi  
Swampy woods.  
On logs.  
Rare.

*Lecidia vernalis* (L.) Ach.  
Floodplain woods.  
On bark.  
Occasional.

## Family Parmeliaceae

*Candelaria concolor* (Dicks.) B. Stein  
Along Illinois River (Jersey Co.).  
On bark.  
Rare.

*Parmelia aurulenta* Tuck.  
Swamps.  
On bald cypress.  
Rare.

*Parmelia caperata* (L.) Ach.  
Swamps.  
On bald cypress.  
Rare.

*Parmelia crozalsiana* B. de Lesd.  
Low, floodplain woods.  
On bark.  
Occasional.

*Parmelia erecta* Berry  
Around an oxbow lake (Alexander Co., Ill.).  
On bark.  
Rare.

*Parmelia hypotropa* Nyl.  
Swamps.  
On various trees and shrubs.  
Common.

*Parmelia perforata* (Jacq.) Ach.  
Low, floodplain woods.  
On bark.  
Occasional.

*Parmelia rudecta*  
Swamps.  
On bark.  
Common.

*Parmelia texana* Tuck.  
Low, floodplain woods.  
On bark.  
Rare.

#### Family Physciaceae

*Physcia ciliata* (Hoffm.) Dr.  
Floodplain of Illinois River (Calhoun Co.).  
On bark.  
Rare.

*Physcia grisea* Zahlb.  
Along Mississippi River (Jackson Co., Ill.).  
On limestone cliff at edge of river.  
Rare.

*Physcia millegrana* Degel.  
Swamps; low, floodplain woods.  
On bark.  
Common.

*Physcia orbicularis*  
Low, floodplain woods.  
On bark.  
Occasional.

*Physcia stellaris* (L.) Nyl.  
Swamps.  
On bark.  
Occasional.

*Physcia syncolla* Tuck.  
Low, floodplain woods.  
On bark.  
Occasional.

*Physcia tribacoides* Nyl.  
Low, floodplain woods.  
On bark.  
Occasional.

#### Family Stictaceae

*Xanthoria fallax* (Hepp) Arn.  
Low, floodplain woods.  
On bark.  
Common.

#### Family Cypheliaceae

*Cyphelium carolinianum* (Tuck.) Zahlbr.  
Swamps.  
On bark.  
Rare.

## Ferns of the Mississippi and Illinois River Floodplains

The following list of ferns is based on published records and collections made by the investigator and several of his students. For each species there are statements describing the habitat and the overall distribution. Relative abundance is also given for each species, based on the investigator's personal observation.

Nomenclature follows Mohlenbrock (1967).

### Family Equisetaceae

*Equisetum variegatum* Schleich.

Border of a swamp (Carroll Co., Ill.).

Range: Greenland to Alaska, south to California, Illinois, and Pennsylvania.

Rare.

*Equisetum arvense* L.

Moist soil.

Range: Throughout North America.

Common.

*Equisetum hyemale* L. var. *affine* (Engelm.) A. A. Eaton

Shores and banks.

Range: Throughout North America.

Common.

*Equisetum laevigatum* A. Br.

Moist soil.

Range: Quebec to British Columbia, south to California, Texas, and West Virginia; Mexico.

Occasional.

*Equisetum fluviatile* L.

In water of lakes adjacent to Illinois River.

Range: Newfoundland to Alaska, south to Oregon, Illinois, and Pennsylvania.

Occasional.

### Family Ophioglossaceae

*Ophioglossum vulgatum* L.

Low, floodplain woods.

Range: Prince Edward Island to Alaska, south to Mexico.

Rare, but possibly overlooked.

**Family Polypodiaceae**

*Onoclea sensibilis* L.

Low, floodplain woods.

Range: Newfoundland to Manitoba, south to Texas and Florida.

Common.

*Cystopteris fragilis* (L.) Bernh. var. *protrusa* Weatherby

Low, floodplain woods.

Range: New York to Minnesota, south to Oklahoma and Georgia.

Common.

**Family Salviniaceae**

*Azolla mexicana* Presl

Swamps; ponds.

Range: Wisconsin; Illinois; Missouri; British Columbia to California; Utah; Mexico.

Occasional.

Possible Impacts of Increased Barge Traffic  
on Non-vascular Plants and Ferns

The following paragraphs give a general speculation on the effects which increased barge traffic on the Mississippi and Illinois Rivers may have on the non-vascular plants and ferns which grow in the flood-plains. The increased barge traffic may result from the construction of Lock and Dam 26 (Replacement). Speculation concerning wave wash, sand bar formation and destruction, air pollution, increased turbidity, and new construction sites will be considered.

Wave Wash. Increased barge traffic will mean stronger and more frequent waves striking the shorelines of the Mississippi and Illinois Rivers. Only those species of non-vascular plants which grow on the mud flats or along the banks of the rivers will be affected by increased wave action. The wave action may be sufficient enough to wash away some or all of these non-vascular plants.

The mosses which may be affected by increased wave action are listed below, along with a statement of their relative abundance.

*Fissidens adiantoides* - common

*Pleuridium subulatum* - common

*Dicranella heteromalla* - occasional

*Dicranella varia* - common

*Barbula unguiculata* - occasional

*Desmatodon obtusifolius* - rare

*Thelia lascurii* - rare

*Leptodictyum riparium* - rare

*Buxbaumia aphylla* - occasional

*Diphyscium foliosum* - common

*Tetraphis pellucida* - common

*Pogonatum pensilvanicum* - common

The following liverworts and hornworts may be affected by increased wave action:

*Anthoceros macounii* - occasional

*Anthoceros crispulus* - occasional

*Anthoceros punctatus* - occasional

*Phaeoceros laevis* - common

*Notothylas orbicularis* - occasional

*Solenostoma hyalinum* - common

*Solenostoma fossombronioides* - common

*Blasia pusilla* - occasional

*Riccardia pinguis* - common

*Ricciocarpus natans* - occasional

*Riccia sorocarpa* - rare

*Riccia arvensis* - occasional

*Riccia frostii* - rare

*Riccia beyrichiana* - occasional

Since most lichens occur away from the river's edge, they will not be affected by increased wave action. Only the rare *Physcia grisea*, which grows on a limestone cliff washed by the Mississippi River, might be dislodged from the rock crevices.

No ferns will be affected by increased wave action.

**Sand Bar Formation and Destruction.** Since none of the non-vascular plants nor ferns normally occupies sand bars, the destruction or building-up of sand bars is not applicable to this report.

**Air Pollution.** Although some lichens have been shown to be extremely sensitive to air pollution (Hale, 1961), the physical distance away from the river for most species of lichens lessens the chances that lichens in the floodplain will be adversely affected by any possible increase in air pollution from the increase in barges on the rivers.

**Increased Turbidity.** During construction of L & D 26 (Replacement) and the resulting increase in barge traffic on the river, there will undoubtedly be an increase in turbidity of the water. Suspended sediments generally affect planctonic organisms and productivity adversely by reducing light penetration. Several of the planctonic species known to occur in the Mississippi and/or Illinois River may disappear due to increased turbidity.

**Construction Sites.** Any construction sites which are developed along the rivers will cause massive destruction of any non-vascular plants which happen to be in the way. If most new construction is in already urbanized areas, less damage to non-vascular plants should be the result.



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